ROC920010201US1   PATENTS

Amendments to the Claims

Please amend Claims 1 and 23 through 33 such that the pending claims will read as follows:

1. (Currently Amended)   A scheduler for a network processor, the scheduler including a scheduling queue in which a weighted fair queuing is applied, the scheduling queue having a range R, flows being attached to the scheduling queue at a distance D from a current pointer for the scheduling queue, the distance D being calculated for each flow according to the formula D = ((WF x FS)/SF), where:

WF is a weighting factor applicable to a respective flow;

FS is a frame size attributable to the respective flow; and

SF is a scaling factor;

wherein the scaling factor SF is adjusted depending on a result of comparing the distance D to the range R.

2. (Original)   The scheduler of claim 1, wherein SF is increased if D > R.

3. (Original)   The scheduler of claim 2, wherein SF is increased if D exceeds R in regard to a predetermined number of calculations of D.

4. (Original)   The scheduler of claim 1, wherein SF is decreased if D < R/2.

5. (Original)   The scheduler of claim 4, wherein SF is decreased if D is less than one-half R in regard to a predetermined number of calculations of D.

-2-

6.(Original)   The scheduler of claim 1, wherein SF = 2n, n being a positive integer.

7.(Original)   A scheduler of claim 6, wherein n is incremented to adjust SF.

8.(Original)   The scheduler of claim 6, wherein n is decremented to adjust SF.

9.(Original)   A method of managing a scheduling queue in a scheduler for a network processor, the scheduling queue having a range R, flows being attached to the scheduling queue at a distance D from a current pointer for the scheduling queue, the distance D being calculated for each flow according to the formula $D = ((WF \times FS)/SF)$, where:

WF is a weighting factor applicable to a respective flow;

FS is a frame size attributable to the respective flow; and

SF is a scaling factor;

the method comprising:

calculating the distance D with respect to a particular flow to be enqueued;

comparing the distance D to the range R; and

adjusting the scaling factor SF based on a result of the comparing step.

10.(Original)   The method of claim 9, wherein the scaling factor SF is increased if the comparing step determines that D > R.

-3-

11.(Original) The method of claim 9, wherein the scaling factor SF is decreased if the comparing step determines that D < R/2.

12.(Original) The method of claim 9, wherein SF = 2n, n being a positive integer, and the adjusting step includes incrementing or decrementing n.

13.(Original) A method of managing a scheduling queue in a scheduler for a network processor, the scheduling queue having a range R, flows being attached to the scheduling queue at a distance D from a current pointer for the scheduling queue, the distance D being calculated for each flow according to the formula $D = ((WF \times FS)/SF)$, where:
    WF is a weighting factor applicable to a respective flow;
    FS is a frame size attributable to the respective flow; and
    SF is a scaling factor;
    the method comprising:
    calculating the distance D with respect to a particular flow to be enqueued;
    comparing the distance D to the range R;
    incrementing a counter if the comparing step determines that D > R; and
    increasing SF if the incremented counter exceeds a threshold.

14.(Original) The method of claim 13, wherein SF = 2n, n being a positive integer, and the increasing step includes incrementing n.

15.(Original) A method of managing a scheduling queue in a scheduler for a network processor, the scheduling queue

-4-

ROC920010201US1   PATENTS

having a range R, flows being attached to the scheduling queue
at a distance D from a current pointer for the scheduling
queue, the distance D being calculated for each flow according
to the formula $D = ((WF \times FS)/SF)$, where:
    WF is a weighting factor applicable to a respective flow;
    FS is a frame size attributable to the respective flow;
and
    SF is a scaling factor;
    the method comprising:
    calculating the distance D with respect to a particular
flow to be enqueued;
    comparing the distance D to the range R;
    incrementing a counter if the comparing step determines
that $D < R/2$; and
    decreasing SF if the incremented counter exceeds a
threshold.

    16. (Original) The method of claim 15, further comprising:
    clearing the counter if the comparing step determines that
$D > R/2$.

    17. (Original) The method of claim 15, wherein $SF = 2n$, n
being a positive integer, and the decreasing step includes
decrementing n.

    18. (Original) A method of managing a scheduling queue in
a scheduler for a network processor, the scheduling queue
having a range R, flows being attached to the scheduling queue
at a distance D from a current pointer for the scheduling
queue, the distance D being calculated for each flow according
to the formula $D = ((WF \times FS)/SF)$, where:
    WF is a weighting factor applicable to a respective flow;

-5-

    FS is a frame size attributable to the respective flow; and

    SF is a scaling factor;

    the method comprising:

    calculating the distance D with respect to a particular flow to be enqueued;

    comparing the distance D to the range R;

    incrementing a first counter if the comparing step determines that $D > R$;

    increasing SF if the incremented first counter exceeds a first threshold;

    incrementing a second counter if the comparing step determines that $D < R/2$; and

    decreasing SF if the incremented second counter exceeds a second threshold.

    19. (Original) The method of claim 18, further comprising:

    clearing the second counter if the comparing step determines that $D > R/2$.

    20. (Original) The method of claim 18, wherein $SF = 2n$, n being a positive integer, the increasing step includes incrementing n, and the decreasing step includes decrementing n.

    21. (Original) A method of managing a scheduling queue in a scheduler for a network processor, the scheduling queue having a range R, flows being attached to the scheduling queue at a distance D from a current pointer for the scheduling queue, the distance D being calculated for each flow according to the formula $D = ((WF \times FS)/SF)$, where:

    WF is a weighting factor applicable to a respective flow;

-6-

FS is a frame size attributable to the respective flow;
and
SF is a scaling factor;
the method comprising:
calculating the distance D with respect to a particular
flow to be enqueued;
comparing the distance D to the range R; and
increasing SF if the distance D exceeds the range R.

22. (Original) A method of managing a scheduling queue in
a scheduler for a network processor, the scheduling queue
having a range R, flows being attached to the scheduling queue
at a distance D from a current pointer for the scheduling
queue, the distance D being calculated for each flow according
to the formula $D = ((WF \times FS)/SF)$, where:
WF is a weighting factor applicable to a respective flow;
FS is a frame size attributable to the respective flow;
and
SF is a scaling factor;
the method comprising:
calculating the distance D with respect to a particular
flow to be enqueued;
comparing the distance D to the range R;
increasing SF if the distance D exceeds the range R;
incrementing a counter if the comparing step determines
that $D < R/2$; and
decreasing SF if the incremented counter exceeds a
threshold.

23. (Currently Amended) A scheduler for a network
processor, the scheduler including:
a scheduling queue in which a weighted fair queuing
is applied, the scheduling queue having a range R, flows being

-7-

attached to the scheduling queue at a distance D from a current
pointer for the scheduling queue, the distance D being
calculated for each flow according to the formula D = ((WF x
FS)/SF), where:

WF is a weighting factor applicable to a respective
flow;

FS is a frame size attributable to the respective
flow; and

SF is a scaling factor;

wherein the scheduler is adapted to:

calculate the distance D with respect to a particular
flow to be enqueued;

compare the distance D to the range R;

increment a counter if the comparison of the distance
D to the range R determines that D > R; and

increase SF if the incremented counter exceeds a
threshold.

24. (Currently Amended) A scheduler for a network
processor, the scheduler including:

a scheduling queue in which a weighted fair queuing
is applied, the scheduling queue having a range R, flows being
attached to the scheduling queue at a distance D from a current
pointer for the scheduling queue, the distance D being
calculated for each flow according to the formula D = ((WF x
FS)/SF), where:

WF is a weighting factor applicable to a respective
flow;

FS is a frame size attributable to the respective
flow; and

SF is a scaling factor;

wherein the scheduler is adapted to:

-8-

calculate the distance D with respect to a particular flow to be enqueued;

compare the distance D to the range R;

increment a counter if the comparison of the distance D to the range R determines that D < R/2; and

decrease SF if the incremented counter exceeds a threshold.

25. (Currently Amended) A scheduler for a network processor, the scheduler including:

a scheduling queue in which a weighted fair queuing is applied, the scheduling queue having a range R, flows being attached to the scheduling queue at a distance D from a current pointer for the scheduling queue, the distance D being calculated for each flow according to the formula D = ((WF x FS)/SF), where:

WF is a weighting factor applicable to a respective flow;

FS is a frame size attributable to the respective flow; and

SF is a scaling factor;

wherein the scheduler is adapted to:

calculate the distance D with respect to a particular flow to be enqueued;

compare the distance D to the range R;

increment a first counter if the comparison of the distance D to the range R determines that D > R;

increase SF if the incremented first counter exceeds a first threshold;

increment a second counter if the comparison of the distance D to the range R determines that D < R/2; and

decrease SF if the incremented second counter exceeds a second threshold.

-9-

PATENTS

    26. (Currently Amended)   A scheduler for a network
processor, the scheduler including:
        a scheduling queue in which a weighted fair queuing
is applied, the scheduling queue having a range R, flows being
attached to the scheduling queue at a distance D from a current
pointer for the scheduling queue, the distance D being
calculated for each flow according to the formula $D = ((WF \times FS)/SF)$, where:
        WF is a weighting factor applicable to a respective
flow;
        FS is a frame size attributable to the respective
flow; and
        SF is a scaling factor;
        wherein the scheduler is adapted to:
        calculate the distance D with respect to a particular
flow to be enqueued;
        compare the distance D to the range R; and
        increase SF if the distance D exceeds the range R.

    27. (Currently Amended)   A scheduler for a network
processor, the scheduler including:
        a scheduling queue in which a weighted fair queuing
is applied, the scheduling queue having a range R, flows being
attached to the scheduling queue at a distance D from a current
pointer for the scheduling queue, the distance D being
calculated for each flow according to the formula $D = ((WF \times FS)/SF)$, where:
        WF is a weighting factor applicable to a respective
flow;
        FS is a frame size attributable to the respective
flow; and
        SF is a scaling factor;

-10-

wherein the scheduler is adapted to:

calculate the distance D with respect to a particular
flow to be enqueued;

compare the distance D to the range R;

increase SF if the distance D exceeds the range R;

increment a counter if the comparison of the distance
D to the range R determines that D < R/2; and

decrease SF if the incremented counter exceeds a
threshold.

28. (Currently Amended) A computer program product for
use with a scheduler for a network processor, the scheduler
including:

a scheduling queue in which a weighted fair queuing
is applied, the scheduling queue having a range R, flows being
attached to the scheduling queue at a distance D from a current
pointer for the scheduling queue, the distance D being
calculated for each flow according to the formula $D = ((WF \times FS)/SF)$, where:

WF is a weighting factor applicable to a respective
flow;

FS is a frame size attributable to the respective
flow; and

SF is a scaling factor;
the computer program product comprising:

a medium readable by a computer, the computer
readable medium having computer program code adapted to:

calculate the distance D with respect to a particular
flow to be enqueued;

compare the distance D to the range R;

increment a counter if the comparison of the distance
D to the range R determines that D > R; and

-11-

ROC920010201OS1   PATENTS

increase SF if the incremented counter exceeds a
threshold.

29. (Currently Amended) A computer program product for
use with a scheduler for a network processor, the scheduler
including:

a scheduling queue in which a weighted fair queuing
is applied, the scheduling queue having a range R, flows being
attached to the scheduling queue at a distance D from a current
pointer for the scheduling queue, the distance D being
calculated for each flow according to the formula $D = ((WF \times FS)/SF)$, where:
WF is a weighting factor applicable to a respective
flow;
FS is a frame size attributable to the respective
flow; and
SF is a scaling factor;
the computer program product comprising:
a medium readable by a computer, the computer
readable medium having computer program code adapted to:
calculate the distance D with respect to a particular
flow to be enqueued;
compare the distance D to the range R;
increment a counter if the comparison of the distance
D to the range R determines that $D < R/2$; and
decrease SF if the incremented counter exceeds a
threshold.

30. (Currently Amended) A computer program product for
use with a scheduler for a network processor, the scheduler
including:

-12-

a scheduling queue in which a weighted fair queuing
is applied, the scheduling queue having a range R, flows being
attached to the scheduling queue at a distance D from a current
pointer for the scheduling queue, the distance D being
calculated for each flow according to the formula $D = ((WF \times FS)/SF)$, where:

WF is a weighting factor applicable to a respective
flow;

FS is a frame size attributable to the respective
flow; and

SF is a scaling factor;
the computer program product comprising:

a medium readable by a computer, the computer
readable medium having computer program code adapted to:

calculate the distance D with respect to a particular
flow to be enqueued;

compare the distance D to the range R;

increment a first counter if the comparison of the
distance D to the range R determines that $D > R$;

increase SF if the incremented first counter exceeds
a first threshold;

increment a second counter if the comparison of the
distance D to the range R determines that $D < R/2$; and

decrease SF if the incremented second counter exceeds
a second threshold.

31. (Currently Amended) A computer program product for
use with a scheduler for a network processor, the scheduler
including:

a scheduling queue in which a weighted fair queuing
is applied, the scheduling queue having a range R, flows being
attached to the scheduling queue at a distance D from a current
pointer for the scheduling queue, the distance D being

-13-

calculated for each flow according to the formula D = ((WF x
FS)/SF), where:

   WF is a weighting factor applicable to a respective
flow;

   FS is a frame size attributable to the respective
flow; and

   SF is a scaling factor;
the computer program product comprising:

   a medium readable by a computer, the computer
readable medium having computer program code adapted to:

   calculate the distance D with respect to a particular
flow to be enqueued;

   compare the distance D to the range R; and

   increase SF if the distance D exceeds the range R.

  32. (Currently Amended) A computer program product for
use with a scheduler for a network processor, the scheduler
including:

   a scheduling queue in which a weighted fair queuing
is applied, the scheduling queue having a range R, flows being
attached to the scheduling queue at a distance D from a current
pointer for the scheduling queue, the distance D being
calculated for each flow according to the formula D = ((WF x
FS)/SF), where:

   WF is a weighting factor applicable to a respective
flow;

   FS is a frame size attributable to the respective
flow; and

   SF is a scaling factor;
the computer program product comprising:

   a medium readable by a computer, the computer
readable medium having computer program code adapted to:

-14-

calculate the distance D with respect to a particular
flow to be enqueued;

compare the distance D to the range R;

increase SF if the distance D exceeds the range R;

increment a counter if the comparison of the distance
D to the range R determines that D < R/2; and

decrease SF if the incremented counter exceeds a
threshold.

33.(Currently Amended)   A computer program product for
use with a scheduler for a network processor, the scheduler
including:

a scheduling queue in which a weighted fair queuing
is applied, the scheduling queue having a range R, flows being
attached to the scheduling queue at a distance D from a current
pointer for the scheduling queue, the distance D being
calculated for each flow according to the formula $D = ((WF \times FS)/SF)$, where:

WF is a weighting factor applicable to a respective
flow;

FS is a frame size attributable to the respective
flow; and

SF is a scaling factor;
the computer program product comprising:

a medium readable by a computer, the computer
readable medium having computer program code adapted to:

calculate the distance D with respect to a particular
flow to be enqueued;

compare the distance D to the range R; and

adjust the scaling factor SF based on a result of the
comparison of the distance D to the range R.

-15-